Trauma-informed instruction and Universal Design for Learning

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Introduction

This executive brief introduces and advocates for the use of trauma-informed instruction partnered with the Universal Design for Learning (UDL) framework to support school-aged youth directly affected by conflict. This executive brief begins by defining trauma-informed instruction and its importance. It then introduces the UDL framework and how its strategies help shift educational practices from focusing on the memorization and regurgitation of facts to a practice that shapes students to fully engage in the learning process to become expert learners. From there, the brief compares trauma-informed instruction and UDL, sharing how they align and how they differ. The conclusion communicates how educators can effectively use UDL strategies to deliver trauma-informed instruction in crisis and conflict settings so learning is fully accessible to all students.

Trauma-informed instruction

Since the Vietnam War, researchers have studied trauma and its effects, and over time, this research has led to additional studies on the effects of child abuse, human-made and natural disasters, terrorist attacks, and sociopolitical events (Courtois & Gold, 2009; Haans & Balke, 2018; Knight, 2019; van der Kolk, 2007). From that research, theoretical frameworks evolved, including the theory of constructivist self-development (CSD). This theory addressed how the mistrust experienced by survivors of childhood trauma linked to survivors having distorted thinking about themselves (e.g., powerlessness, worthlessness, and the mistrust of others) (McCann & Pearlman, 1990). These negative emotions destabilized survivors' sense of self and identity and connected to these survivors' inability to manage affect (Brock et al., 2006; Knight, 2019). The survivors' exposure to trauma also resulted in diminished feelings of control and safety and heightened feelings of fear, subsequently affecting all facets of life (Cloitre et al., 2005; McCann & Pearlman, 1990). Other research in the field noted that what might be traumatic for some survivors might not be traumatic for others based on both internal and external influences, including support networks, cultural beliefs, and individual predispositions (Phifer & Hull, 2016; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Significant events, however, can create inescapable trauma, and events such as war particularly affect children and adolescents (Werner, 2012).

Although trauma does not have an agreed-upon definition (Altieri et al., 2021), many experts use SAMHSA's definition. In 2014, the organization researched different definitions of trauma and worked to create a broad definition that still attends to the individual's experience:

> Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects

on the individual's functioning and mental, physical, social, emotional, or spiritual well-being. (p. 7)

By recognizing the individual, supports can be more specific based on need, which is key to establishing a trauma-informed environment.

More recent research in the neurosciences showed that ongoing exposure to trauma in childhood overwhelmed the body's stress response system and could cause permanent neurological damage in children's regulating systems, including memory and affect (Knight, 2019; Nemeroff & Binder, 2014; Perry, 2016). Children's experiences both mirror and differ from adults' experiences, but adverse childhood experiences (ACEs) can lead children to have challenges specific to learning. Exhibit 1 lists many of the challenges that are barriers to learning.

Exhibit 1. Challenges faced by children and youth who have experienced trauma

Challenges	Authors
Diminished social skills Increases in internalizing and externalizing behaviors Less school engagement	Shonk and Cicchetti, 2001 Crosby, 2015
Lower capacity for self-regulation, organization, comprehension, and memorization	Altieri et. al., 2021 Petrone and Stanton, 2021 Wolpow et. al., 2016
Limited executive functioning in social and academic settings Inability to persist through minor challenges Inability to identify emotions Inability to identify how they are acting Challenges with sleeping/nightmares Inability to self-regulate Eating disorders Abuse of alcohol or drugs Depression	Altieri et. al., 2021 Petrone and Stanton, 2021

In 2001, Harris and Fallot introduced the term *trauma-informed* to identify social, behavioral, and mental health services that support individuals, including children, affected by trauma (Knight, 2019). Education systems have since adopted the term and associated supports for trauma-informed instruction (Thomas et al., 2019). Educational environments that apply trauma-informed instruction should be spaces that heal, or at least mitigate, the effects of trauma as they relate to learning and academic achievement. This type of environment can offer students who have experienced trauma a second chance to experience positive outcomes (Lee, 2018). Karen Johnson, Director of Trauma-Informed Services at the National Council for Behavioral Health, also stresses the importance of environment:

Science tells us that children with brains affected [by trauma] are in survival mode in schools. Instead of being able to learn, process and respond, they feel unsafe and often default to a survival mode, which interrupts any kind of learning that can happen in school. We need to understand this dynamic

and how to create safe, nurturing environments in which children who have been impacted by trauma can learn. (as cited in Lee, 2018)

Unfortunately, while some organizations have created models to guide understanding and instruction (e.g., see Collaborative Learning for Educational Achievement and Resilience [CLEAR] https://extension.wsu.edu/clear/) (Blodgett & Dorado, 2016), no widely recognized framework exists for trauma-informed instruction (Burdick & Coor, 2021; Thomas et al., 2019; Petrone & Stanton, 2021). In fact, no agreement or common operationalization of the terms "trauma-informed approach," "trauma sensitive," or "trauma-informed system" exists either (Hanson & Lang, 2016; Maynard et al., 2017; Thomas et al., 2019), and no overarching organization helps educators determine why they should use a particular strategy for learners with trauma or to what end (i.e., Should they turn to one strategy prior to implementing another? Do certain strategies complement one another, leading to a deeper learning experience or support?).

Instead, some approaches encourage educators to focus on a strengths-based perspective that includes constructing attainable goals for students, celebrating student success, and building and encouraging a growth mindset (Burdick & Coor, 2021). Other perspectives recommend that educators learn about the "acting-out cycle" and how it relates to fight, flight, or freeze when a student is confronted with a traumatic event (Thomas et al., 2019, p. 426). In addition, other approaches recognize the teacher-student relationship as a mandatory component of trauma-informed instruction (Burdick & Corr, 2021).

Souers and Hall (2016) reported that students who experienced trauma responded positively when educators openly offered students forgiveness and support, showed that they believed in students, showed a clear effort to maintain relationships with students, and subsequently took action when relationships needed to be repaired. These approaches, however, required disciplined self-care on the part of the educator. Such educator-student relationships were often charged with emotions and deep needs; therefore, researchers noted that educators needed to establish relationship boundaries (Altieri et al., 2021). Boundaries allowed the educator to maintain a healthy level of self-care when dealing with the challenging emotions related to trauma (Neff & Germer, 2018).

Although the beforementioned approaches are helpful and necessary for the mental health of teachers and students, these approaches have not been combined within a guiding framework. Educators need a thoroughly defined framework that includes the supports necessary for students who have experienced trauma as well as guides educators to make all learning accessible. The Universal Design for Learning (UDL) framework can model how to organize these approaches and may support educators in implementing trauma-informed instruction.

The Universal Design for Learning framework

The UDL framework originated at CAST, an education, research, and design organization. In creating the UDL framework, CAST's neuroscientists, educators, and researchers united best practices in their respected fields with best practices in psychology and special education to provide guidance to educators so all learners could access and participate in the general education setting. More importantly, the creators

of the UDL framework understood that students need to build skills outside of memorization and replication. Students need to gain skills that allow them to be purposeful, motivated, resourceful, knowledgeable, strategic, and goal-directed learners (Meyer et al., 2014). This collection of best practices (see Exhibit 2) became known as the UDL Guidelines (CAST, 2018).

Exhibit 2. The CAST UDL Guidelines
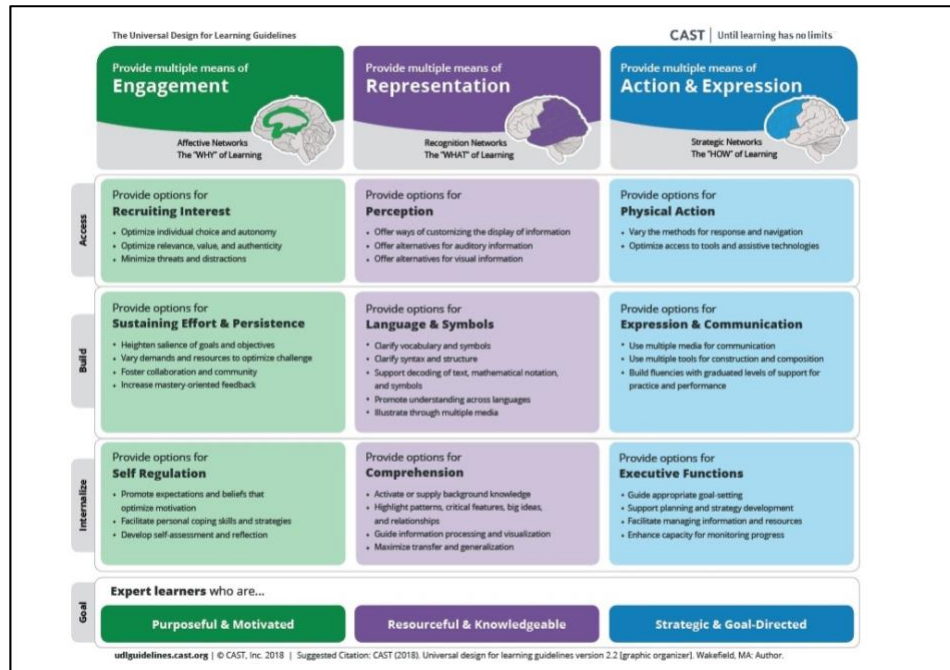
Note. From *Universal Design for Learning Guidelines*, 2018, CAST. Copyright 2018 by CAST, Inc. Used with permission. https://udlguidelines.cast.org/

The UDL Guidelines are organized into three columns, each associated with specific regions of the brain (i.e., affective networks, recognition networks, and strategic networks). Each region is then mapped according to how the learning brain operates. For example, the affective networks (associated with the principle of engagement) are associated with the emotional centers of the brain and how emotions impact learning. Over time, the fields of neuropsychology and neuroscience have come to understand that emotion drives learning. In fact, emotions make humans learn more deeply (Immordino-Yang & Damasio, 2007). UDL is designed to support educators in tapping into the affective networks to help learners find purpose and motivation in their learning.

The other two regions are the recognition networks (associated with the principle of representation) and the strategic networks (associated with the principle of action and expression). The recognition networks allow learners to make sense of complex concepts, identify what is around them, and subsequently, makes sense of it all (Rose & Meyer, 2002). For example, Exhibit 3 shows a woman cooking food on a beach. While looking at this image, a learner's recognition networks are activated. The learner not only recognizes that the woman is on the beach but also that the woman is barbequing. Although the learner may not be able to identify the food pictured, the learner understands the food is most likely used for barbequing. At the same time, the learner

may also recall the act of barbequing (e.g., the smells, tastes, temperature, sounds, sand, and view of the beach) without looking at the picture. All of these actions indicate that the recognition networks have activated (Meyer et al., 2014; Nelson, 2021). The UDL Guidelines help educators design lessons and environments that support all learners' recognition networks and provide them with learning experiences that enable all to become resourceful and knowledgeable learners.

Exhibit 3. *Beachside Barbeque*

Note. From *Beachside Barbeque* [Photograph], by David Stanley, n.d., Flickr (https://www.flickr.com/photos/davidstanleytravel/). CC by 2.0

Alternatively, the strategic networks plan, execute, and monitor actions (Rose & Meyer, 2002). For example, if a person is brushing their teeth, assembling a puzzle, taking a road trip, or putting a child to bed, the strategic networks plan, execute, and monitor the associated actions. When educators provide all learners with the options suggested in the UDL Guidelines that align with the strategic networks, students can build skills related to becoming more deliberate and goal-directed learners.

There are three principles that align with these three brain networks and provide an overarching organization to the UDL Guidelines. The principle of engagement (affective networks), the principle of representation (recognition networks), and the principle of action and expression (strategic networks) are each associated with researched strategies that can be used in the classroom to support all learners.

In the graphic organizer depicting the UDL Guidelines, the words *access*, *build*, and *internalize* are tabs that highlight each row (see Exhibit 2). With these tabs, CAST articulates the movement learners make toward becoming expert learners. When UDL is activated in the classroom, the first row of guidelines helps students *access* the foundation they need in a subject. The second row of guidelines helps them *build* on the individual skills. The bottom row of guidelines helps students practice the *internalization* of these skills.

As educators learn about the networks and principles through the UDL Guidelines, they are encouraged to incorporate representations of the nine support

options in their lessons and environments to support learner variability. For example, while some students may have the base skills (access) to perceive the information placed in front of them (e.g., they are able to access the support they need to decode a story), they may need support as they continue their work (e.g., they need help understanding the story's vocabulary). Other learners may experience a different set of needs; therefore, it is important to have different support options available.

The key component underlying this graphic organizer is variability, as UDL is based on the premise that all learners are variable (Meyer et al., 2014). Not only do learners learn differently from one another, they learn differently based on the context. The context (e.g., the physical, emotional, relational, and academic design of the environment) as well as the experiences students bring with them directly affect their learning (Nelson, 2021). This means that each student's connection to learning can shift based on the physical layout of the classroom, the relationship they have with their teacher or other students, the content, or the content delivery. For this reason, the UDL framework (i.e., the Guidelines in addition to underlying concepts, including variability) suggests that educators provide all learners options to learn the content or skill that aligns with the lesson's goal(s) rather than an educator devising a specific lesson for an individual learner (Meyer et al., 2014). Because every learner is variable and this makes each learner unique, the concept of variability is why educators must provide all learners with multiple ways and opportunities to learn.

Providing students with learning options also removes the barrier of a single way of learning. In addition, all learners' unique needs can be met by offering simultaneous options. This is only achievable, though, when the teacher understands how to plan lessons and create environments by using the framework instead of applying a variety of disconnected strategies.

This responsiveness to individual difference, labeled *systematic variability*, helps teachers acknowledge and plan for the breadth of need they can assume is present and not feel compelled to create a plan for each student. This breadth assumes that some learners will face barriers and those barriers will vary. However, if a student's needs are perhaps associated with a disability, educators need to understand that the barrier does not sit within the disability (or the student). Similar to how steps in a building can bar access for a wheelchair user but a ramp can allow access, how the educator designs lessons and environments and which options the educator offers can either bar or allow access to learning for students with disabilities. Teachers intentionally choose options based on the assumed ranged of learning needs (i.e., the systematic variability) and the known needs (i.e., specific needs based on a disability or specific needs based on accelerated learning) of the students. Exhibit 4 shows an example of how to lower barriers for all learners rather than devise a specific lesson for each student.

Exhibit 4. Example options for a reading lesson based on the UDL Guidelines

Lesson goal: Students will answer questions about the story to demonstrate their comprehension.		
Principle	**Guideline**	**The teacher provides the following**
Engagement	Recruiting interest	Students are told how the story connects to their lives or asked to identify how a story connects with their lives.
Engagement	Sustaining effort and persistence	Students can work alone or collaboratively when reading.
Engagement	Self-regulation	Students are taught a variety of coping strategies and choose one when they feel challenged by the reading.
Representation	Perception	Students can decode or listen to the story.
Representation	Language and symbols	Before the students read the story, the teacher shows concrete examples or offers relatable examples of any challenging or required vocabulary.
Representation	Comprehension	Before the students read the story, the teacher offers prompts to help students remember background knowledge they can apply while reading the story.
Action and expression	Physical action	Any student that needs to use an assistive device does not need to request permission. Any student that would appreciate a tool to help them read (e.g., a strip of paper to place beneath the words as they read or a strip of paper with a block cut out to place over the words as they read) does not need to request permission.
Action and expression	Expression and communication	Students can choose to speak, write, draw, or create a diagram to demonstrate their comprehension of the story.
Action and expression	Executive functions	Before starting the lesson, the teacher suggests strategies to students if they become stuck while reading the story. Students share which strategies worked for them.

As stated above, the suggested options within the UDL Guidelines come from a wide range of researched strategies that align with and are organized according to the three brain networks. CAST's focus on the brain networks emphasizes the importance of supporting healthy brain development. However, while the brain automatically creates neuronal connections as learners interact with the world (Kuhl et al., 2019), trauma, such as sexual abuse and severe poverty, has been shown to establish structural changes to the brain that negatively impact the child (Dike, 2017; Edwards, 2018). While these structural changes have also been shown to affect learning (Barr, 2018;

Mougrabi-Large & Zhou, 2020), instructional supports can be placed in the lesson and the environment to support these learners and to enhance their development.

Methods

To investigate the relationship between the UDL framework and trauma-informed instruction, the author conducted a literature search of existing research, instructional articles, meta-analyses, and gray literature dating 1990–2021. The author searched databases listed in Exhibit 5 using the following terms: neuroscience and trauma, trauma-informed instruction, trauma-informed approach, trauma and UDL, and UDL. Handsearching reference lists provided additional resources. The author then reviewed the titles and abstracts of 95 articles for alignment with the topics. Of those, the author analyzed 72 full-text articles to ensure applicability.

Exhibit 5. Databases searched

IngentaConnect	Professional Development Collection
Academic Search Complete	DOAJ Directory of Open Access Journals
Gale Academic OneFile	MEDLINE
ERIC	JSTOR Archive Collection A–Z Listing
Nursing and Allied Health Database	Wiley Online Library Database Model
SAGE Complete A–Z List	SpringerLink
Sage Premier Journal Collection	Google Scholar

Results

Although the UDL framework is expansive and designed to support the entire learning brain, some aspects of trauma-informed instruction are not referenced within the framework. This section begins with an overview of how trauma-informed instruction and the UDL framework align and ends with how the two differ.

How UDL and trauma-informed instruction align

The UDL framework is expansive. When understood and implemented as a whole, it is a powerful design tool that guides educators to develop lessons and environments that are responsive to variability and inclusive of all learners, including those with significant challenges, such as learners with disabilities or those experiencing trauma. Trauma-informed instruction can be equally impactful when educators design and deliver lessons and environments that allow for learning and healing (Lee, 2018). Both, however, require intentionality (Burdick & Corr, 2021; Lowrey et al., 2017; Nelson, 2021).

Intentionality

In referring to good teaching practices in their review of trauma-informed instruction, Burdick and Corr (2021) noted that "well-managed, effective learning environments employ many [trauma-informed] strategies without knowing how critical they are" (p. 3). While it is fortunate that such environments exist, conscious design leads to stronger outcomes (Burdick & Corr, 2021). The importance of using of conscious design also emerged in the UDL literature (Van Boxtel & Sugita, 2019; Nussi

& Oh, 2020; Evmenova, 2018). This intentionality is also driven by another quality present in the literature—mindset.

The trauma-informed literature asserts that educators should shift from asking what is wrong with a child to asking what happened to a child (Burdick & Corr, 2021; Thomas et al., 2019). This positions the barrier in the environment (what happened to the student) rather than in the student (what is wrong with the student); however, some educators are not willing to take this step into familiarity by asking what happened because educators may then risk their own self-care (Altieri et al., 2021).

Similarly, UDL asks educators to shift their mindset from believing that the barrier is within the child to seeing that the barrier is external to the learner (Meyer et al., 2014). This is equally challenging for some educators because of their history of seeing disability as a deficit that lies within the student instead of building on the current skills of the student (Pfeiffer, 2002). Mindset shift is not something easily taught and only comes through experience, coaching, and reflection. For this reason, training focused on trauma-informed instruction and UDL must include multiple opportunities for practice, coaching, and reflection.

Variability

UDL specifically identifies variability as a cornerstone to its implementation, and the literature specific to trauma-informed instruction alludes to this same concept as well (Altieri et al., 2021). The concept of variability in the trauma-informed literature notes that every person is deeply affected by the context (e.g., current and past relationships, the physical design of the space, and the emotional interaction that person has with the space) in which they exist. Related to education, this means that why, what, and how an individual learns is deeply affected by the context. Students who have experienced trauma bring the context of that trauma with them into the learning environment, adding an additional dimension to their variability. Having educators recognize and support this dimension is critical to each student's academic and emotional success.

Choice

Another area of alignment between trauma-informed instruction and UDL is choice. Burdick and Corr (2021) asserted that giving students choice is part of an important dynamic to empower students who have experienced or are experiencing trauma. As noted above, a common outcome of trauma is to feel disempowered. From choosing a collaborative partner to choosing how they will show work, students can experience new levels of empowerment that help lower their fight, flight, or freeze impulses (Meyer et al., 2014).

UDL also identifies choice as a significant component for growth as it activates a learner's affective networks, the emotional networks that deeply influence receptivity to learning (Immordino-Yang & Damasio, 2007). The differences students have in background knowledge, personal relevance, and culture all contribute to how they appraise and act in an environment. Therefore, as Rappolt-Schlichtmann and Daley (2013) stated, "Providing options for engagement is crucial" (p. 313). In that same research, Rappolt-Schlichtmann and Daley (2013) share additional positive conditions for learning:

The research literature suggests that the deepest engagement and, consequently, the most positive conditions for learning, occur when: (1) both the challenge of the task and one's own resources (or skill level) are high and are closely matched, (2) the task and/or content appear relevant to the learner, and (3) the learning environment is under the learner's control. (p. 314)

To put a learner in control of the learning environment means providing the students with choices in how they will remain engaged in the process, interact with materials, and share their knowledge and skills. Consequently, providing meaningful choice leads to deep engagement.

Emotional safety

The fourth connection between trauma-informed instruction and UDL is the need to create a safe environment (Hurless & Kong, 2021). In his article about creating such an environment, Perry (2016) explained how fear inhibits exploration and kills curiosity. Pickens and Tschopp (2017) went further to clarify that safety in relation to trauma means feeling safe psychologically and refers to "individuals' inner sense that they are safe because of their ability to feel capable of managing stressors or connecting with someone else who can help the individual manage stressors that make her feel unsafe" (p. 2). This deeper understanding of safety should inform educators' instructional practices.

The UDL Guidelines directly address safety under the guideline of *recruiting interest* and with the checkpoint of *minimize threats and distractions* (CAST, 2018). While the research behind this checkpoint does not directly refer to trauma-informed instruction, work conducted by Carver and Scheier (2005) and cited as part of the research behind the UDL Guidelines confirmed the connection between traumatic events and feeling less safe and the subsequent negative impact on learning. Therefore, the UDL guideline of recruiting interest suggests that educators establish environments where students feel free to make mistakes. Educators can use schedules and charts to communicate timelines and expectations to establish consistency and lower risk. Sensory stimulation should be lowered and social demands around participation should shift to ensure all students feel comfortable. Finally, educators can design the environment so all students can contribute in ways that feel safe to them (e.g., they don't have to stand in front of the class or have their papers posted).

Effectiveness

A final connection between trauma-informed instruction and the UDL framework is that there is no consistent determination of effectiveness for either strategy (Thomas et al., 2019; Rao et al., 2017). Studies have examined the effectiveness of strategies related to both trauma-informed practices (Thomas et al., 2019) and the UDL Guidelines (see http://udlguideline.cast.org for a list of research behind each checkpoint), and researchers can measure the UDL outcomes, such as engagement, executive functioning, purpose, motivation and work ethic, resourcefulness, and social skills (Evmenova et al., 2018). However, neither the UDL framework nor trauma-informed instruction has a widely accepted and validated tool to measure educators'

implementation. In both cases, this has hindered the growth, appropriate application, and a deeper understanding of each strategy.

Understanding the overarching overlaps between trauma-informed instruction and UDL can be helpful when using the UDL framework to implement trauma-informed instruction. Equally as important, though, is understanding how these two areas differ. The section below provides that insight.

How UDL and trauma-informed instruction differ

The most significant difference between UDL and trauma-informed instruction is the purpose behind each strategy. The purpose of UDL is to help learners gain the skills needed to become expert learners (i.e., purposeful, motivated, resourceful, knowledgeable, strategic, and goal-directed) (Meyer et al., 2014; Nelson, 2021). Although the framework provides guidance on strategies linked to the nine guidelines, teachers choose which strategies to use to help learners gain the skills of expert learners. In addition, UDL is a framework that has a defined organization. The ideas suggested within the Guidelines focus on the emotions of learning, how a skill or information is represented, and the options students have to make decisions and show their knowledge and understanding.

Another difference is that the UDL Guidelines assert ideas, not specific strategies. For example, one suggestion under the checkpoint *minimize threats and distractions* under the guideline of *recruiting interest* under the principle of *engagement* suggests that teachers *create an accepting and supportive classroom climate* (CAST, 2018). While teachers can use a variety of strategies to achieve this outcome, teachers should choose strategies based on local, healthy cultural norms. For example, a teacher placing their hands on a student's shoulders or even hugging a student may be an accepting and supportive classroom climate in one locale. However, students and teachers in another location might prefer bowing to one another to indicate acceptance and support. This is why UDL provides guidance for teachers, not specific strategies.

Finally, the UDL framework was designed to provide access to learning for all learners. This access comes through a variety of avenues, including teachers providing multiple options that encompass the needs of all learners and instructional goals that clearly identify what students need to learn but not how they should learn it (Meyer et al., 2014; Nelson, 2019). This part of the design is critical for each classroom seeking to implement UDL.

In contrast, the purpose of using trauma-informed strategies during instruction is to support students who have experienced or who are experiencing trauma and to address their immediate needs. In addition, other trauma-informed strategies are designed to help students improve their mental health. Unfortunately, no framework brings all of these strategies together to communicate this type of progression or overarching goal. Instead, the teachers' instructional choices focus on mitigating the barriers students might face due to trauma.

This section reviewed how trauma-informed instruction and UDL are similar and how they differ. To understand the intersection between the two, one must look at the instructional practices. The following section provides a set of exhibits that articulate how UDL can guide the use of trauma-informed instruction and provide opportunities for these students to gain the skills of expert learners.

Discussion

As stated above, trauma-informed instructional strategies can be helpful to learners, but no framework organizes the strategies to represent learners' growth or improvement. However, some authors and organizations have created their own groupings to help communicate the strategies' effectiveness. Burdick and Corr (2021) organized strategies into the following groups: attachment, discipline, safety, and self-regulation. Other experts have focused on relationship building by grouping strategies that create an environment that is calm, attuned, present, and predictable and does not let children's emotions escalate the teacher's emotions (Health Federation of Philadelphia, 2010; O'Neill et al., 2018). O'Neill, George, and Wagg (2018, pp. 10–11) bundled strategies related to structure and consistency and grouped them into consistent classroom routines, class meetings and schedules, providing visuals, and transitions.

Upon close examination, most strategies suggested in the literature are represented within the UDL framework. The danger of showing this connection, however, is complacency. Alignment does not mean that the UDL Guidelines automatically represent the application and implementation of trauma-informed instruction. As is true with all instructional strategies and as discussed previously, educators must apply them with intentionality. By identifying trauma-informed strategies through the lens of the UDL framework, educators can use the strategies with the intent of recognizing and supporting the needs of students experiencing trauma as part of the intent of helping all learners gain the important skills related to expert learning.

Exhibits 6 through 8 show how trauma-informed strategies align with UDL and how UDL can help educators implement the strategies with a focus on expert learning. Each exhibit organizes a block of information by the rows of access, build, or internalize. Because most trauma-informed strategies and instruction focus on supporting the emotional needs of the learner, these three exhibits focus on the affective networks and the principle of engagement. The left column suggests the trauma-informed strategy that aligns with the row under engagement. To its right, is a column that shares how that strategy could support expert learning.

Exhibit 6. Access

Engagement: Access	
Trauma-informed strategy	**Implementing the strategy with a focus on expert learning**
For students trying to regain control (and possibly demonstrating stubbornness), offer them appropriate choice that gives them a sense of control (e.g., whether to begin an assignment now or in 5 minutes, choosing a station) (Health Federation of Philadelphia, 2010).	Choice-making creates an initial pathway toward intrinsic motivation (Patall et al., 2010). Intrinsic motivation can only occur if the option is offered over time and students are guided to think of their own choices that would motivate them.
Greet students by name each day (Burdick & Corr, 2021).	Students who feel seen are shown to be more motivated to participate and learn (Cook et al, 2018).

Provide a classroom that is physically and emotionally safe (e.g., no verbal threats or physical assaults) (Cole et al., 2013).	The condition of a classroom's physical environment (e.g., student interaction, whether it felt safe) directly impacts the learning and motivation of students (Asiyai, 2014).
Help students see that their voices are heard and respected (Burdick & Corr, 2021).	Student voice isn't just verbal. Instead, watch for body language and text (Cook-Sather, 2006). Consistently ensure students know that you see and value these different forms of communication. This can motivate them to speak up and share knowledge and experiences.
Use improvisational games or class puzzles that align with the goal (Australian Childhood Foundation, 2010).	Using non-competitive games can spark discussion and allow children to build social skills (Jiménez, 2015). Using games that align with the content allows learners to experience learning while alleviating stress. Connecting the game to the content or skill creates purpose. The game can be a motivator for learning.
Identify a safe area or a safe space any student can go to when they need it (Wolpow et al., 2016).	Knowing there is a consistent calming zone or person available allows the learner to shift away from being panicked and shift toward the mindset of learning (Wolpow et al., 2016). This allows them to remain physically and mentally positioned for learning.

Exhibit 7. Build

Engagement: Build	
Trauma-informed strategy	**Implementing the strategy with a focus on expert learning**
Use language that focuses on the process and not the product (Wolpow et al., 2016).	Feedback can focus on the learner's movement through a process rather than the product and can focus on helping them thrive and find different avenues through the process of learning (Dweck, 2015).
Instead of using warnings for what could be seen as misbehavior, understand that students who have experienced trauma lack self-regulation skills. Instead, state, "I see you need help with…" (the inappropriate behavior) to help guide them into an appropriate behavior (State of Victoria & State of Queensland, 2013)	Redirecting provides an immediate pathway to a solution and guides the student to stick with the purpose of the lesson or activity.

Exhibit 8. Internalize

Engagement: Internalize	
Trauma-informed strategy	**Implementing the strategy with a focus on expert learning**
Help students identify/recognize emotion through the use of literature (Burdick & Corr, 2021).	Literature can be a wonderful place for students to learn about and explore emotions. The formalized process of bibliotherapy is where a student reads about a character who successfully resolves a problem that the student is also facing (Sullivan & Strang, 2002). To engage in skill-building, the student must be given time to reflect on and respond to the character, the character's path, and how the student might see that path as an option. Doing so helps the student identify purpose in moving through the issue.

The above exhibits articulate only a few trauma-informed strategies, but the exhibits' intent is to communicate the connection between those strategies and the UDL Guidelines. Showing this connection allows educators to gauge the type of support they provide learners as those students gain skills related to expert learning.

Conclusion

Understanding the purpose and meaning behind any action lends credence to it (Sinek, 2009). The UDL framework provides educators the understanding and purpose they need to enact the strategies because of the framework's deep and consistent link to neuroscience. Therefore, the connection between UDL and trauma-informed instruction provides teachers with the confidence to know why they are using a particular strategy for a student and to what end result.

Using the UDL framework as the root for instructional decisions allows all learners, regardless of need, access to learning while trauma-informed instruction focuses specifically on students who have experienced trauma. Although many of the strategies associated with trauma-informed instruction benefit all learners, no framework exists to assist educators in organizing strategies to help guide students' growth. This is another advantage to using UDL as the base for all instruction. Once teachers understand the organization of the UDL Guidelines (e.g., the rows), they can make informed decisions about what options to weave into their lessons and environments.

For example, a teacher might notice that some students need structure to help them feel in control as noted in Exhibit 2 (e.g., the access level) while others have built their skills so they can respond to a guiding comment such as, "I see you need help with…" (e.g., the build level). Other students may have gained skills that allow them to see themselves in a story and learn from that character (e.g., the internalize level). Alternatively, a student might come to class one day and the context is such that they need the control structure, whereas the day before, they were able to participate

independently. Because students' response to trauma fluctuates due to context, it is important that educators assess which supports benefit a specific need to help guide students toward the appropriate supports.

Because students in crisis and conflict settings have commonly experienced trauma, they are at risk for acute stress disorder or post-traumatic stress disorder that can lead to symptoms including depression, sleep disruption, dissociation, sadness, suicidal thoughts, worry, and anxiety (Liu, 2017). Although trauma-informed instruction can inform the design of school environments and lessons so schools can be a place where students find safety and peace, the UDL Guidelines provide a robust system guided by a framework designed to promote lessons and environments accessible to all learners. By applying UDL to traumatic-informed instruction, educators are supported to recognize the variability of their learners and identify the kind of overarching support these learners need. Teachers can then confidently select strategies to meet the needs of their learners and provide all learners opportunities to gain skills toward becoming expert learners.

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